

# NATURAL RESOURCES CONSERVATION SERVICE

## CONSERVATION PRACTICE STANDARD

### Irrigation Pit or Regulating Reservoir

#### Irrigation Pit

(Number)

Code 552A

#### DEFINITION

A small storage reservoir constructed to regulate or store a supply of water for irrigation.

#### PURPOSES

To collect and store water until it can be used beneficially to satisfy irrigation requirements.

#### CONDITIONS WHERE PRACTICE APPLIES

This practice applies only to sites meeting all the following criteria and conditions:

1. The existing water supply available to the irrigated area is insufficient to meet conservation irrigation requirements during part or all of the irrigation season.
2. Construction of an irrigation pit is the most practical means of obtaining a needed additional supply of water.
3. An adequate supply of good-quality water is available for storage from surface runoff, streamflow, or from a subsurface source.
4. Topographic, geologic, water table, and soils conditions at the site are satisfactory for the feasible development of the irrigation pit.

5. If surface runoff enters the pit, the contributing drainage area is or can be protected against erosion so that normal sedimentation does not materially shorten the planned life of the pit.

#### CRITERIA

Capacity. Irrigation pits shall be designed to have a usable capacity sufficient to satisfy irrigation requirements in the design area throughout the growing season of the crop or crops being irrigated. In computing capacity requirements, due consideration shall be given, where applicable, to groundwater inflow, surface runoff, precipitation, evaporation and seepage. Additional capacity shall be provided as necessary for sediment storage. The usable capacity of a pit that depends wholly on ground water as a source of supply shall be that part of the pit that is below the static water level.

Pit design. Irrigation pits shall be designed according to the criteria for excavated ponds in the standard for Ponds (378).

Outlet Works. Suitable outlet works shall be provided for the controlled release of irrigation water. The capacity of the outlet works shall be no less than required to provide the outflow rate needed to meet peak irrigation system demands.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

## CONSIDERATIONS

An irrigation pit should be part of the treatment needed to protect soil, water, plant, animal, and air resources. In addition, a conservation cropping system, conservation tillage, crop residue management or other appropriate system should be planned to control erosion above the pit and protect the other resources. This management system must be planned to prevent excessive maintenance and operation problems.

Effects on water quantity and quality shall be considered. This practice is generally built to extend below ground surface and may extend below the ground water table to use both surface and ground water. When the practice is located in a water-losing hydrologic system or when the head of the water in the pit exceeds the flow from ground water to the pit, recharge may occur. Increased evaporation may take place from the water surface. Pumping from the pit may lower ground water levels and/or affect local water supply.

The practice may improve water quality because of the trapping of sediment or sediment-attached substances. Ground water recharge from the pit that contains dissolved substances may contribute to ground water pollution. Where the ground water quality is poor, recharge with surface water may improve it. Impoundment may increase water temperatures, which would affect downstream water release or recharge. The pit may provide benefits from increased aquatic habitat or wildlife water.

Special attention shall be given to maintaining and improving visual resources and habitat for wildlife where applicable. The landowner/user will be advised if wetlands will be affected and USDA/NRCS wetland policy will apply. All work planned shall be in compliance with General Manual 450-GM, Part 405, Subpart A, Compliance with Federal, State, and Local Laws and Regulations. If archaeological or historical properties are encountered, the USDA/NRCS policy in General Manual 420-GM, Part 401 shall be followed.

## PLANS AND SPECIFICATIONS

Plans and specification for irrigation pits shall be in keeping with this standard and shall describe the requirements for properly installing the practice to achieve its intended purpose.

Irrigation pit specifications. Irrigation pits shall be constructed according to the specifications for Ponds (378).

## OPERATION AND MAINTENANCE

A maintenance program shall be established by the landowner/user to maintain capacity and vegetative cover, items to consider are:

1. Do not graze protected area of pit.
2. Fertilize to maintain a vigorous vegetative cover in protected area. Caution should be used with fertilization to maintain water quality.
3. Mulch, spray or chop out undesirable vegetation periodically to prevent growth of large woody-stemmed weeds, water plants such as cattails or trees (such as willows) from the pit and spillway areas. Caution should be used to use only chemicals approved for this use on the label.
4. Promptly repair eroded areas.
5. Promptly remove any burrowing rodents that may invade area around the pit.
6. Re-establish vegetative cover immediately where scour erosion has removed established seeding.
7. Keep open all spillways and remove trash that may accumulate around entrance.
8. Periodically inspect area for any new maintenance items and if any are observed take immediate action to protect from further damage or deterioration.